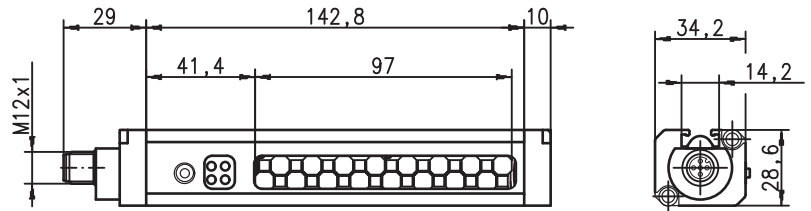


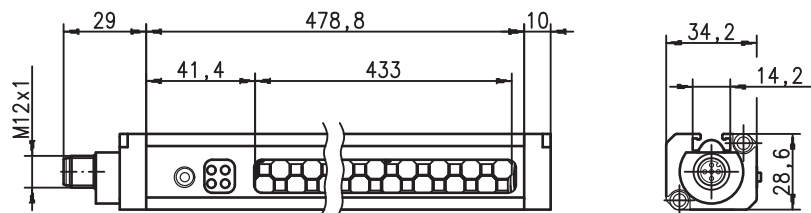
CSR 780

Switching Retro-Reflective Light Curtain

Dimensioned drawing

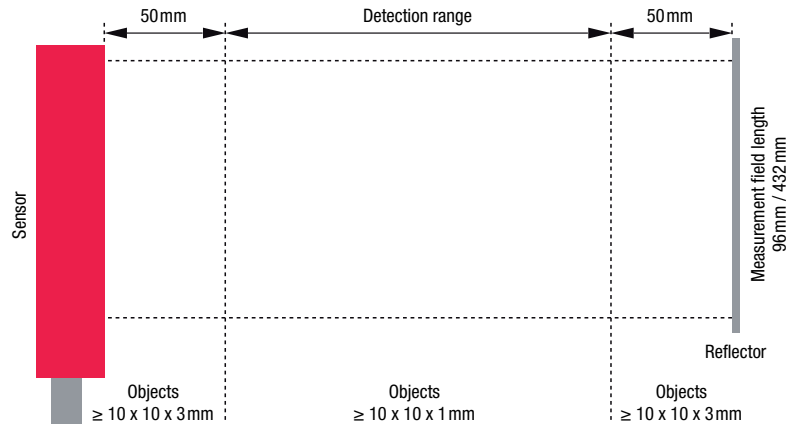


CSR 780-01-96/...WHE-M12

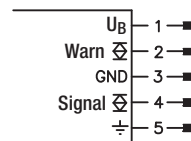


CSR 780-01-432/...WHE-M12

Measurement window



Electrical connection



en 01-2015/05 50128401



0 ... 700mm

18 - 30 V
DC

- Complete detection of small objects ($\geq 10\text{mm} \times 10\text{mm} \times 1\text{mm}$)
- Object speed $\leq 3.5\text{m/s}$
- Readjustment when soiled
- Warning output for prefailure message
- Time-saving adjustment by means of teach-in

We reserve the right to make changes • DS_CSR780_en_50128401_fm



Accessories:

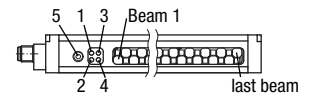
(available separately)

- Reflector OCS 110x80mm-M
Part No.: 50111155
- Reflector OCS 450x80mm-M
Part No.: 50111154
- Additional fastening sliding blocks BT-NC,
Part No.: 425720
- Standard cable with M12 connector, e.g.:
K-D M12W-5P-2m-PVC
Part No.: 50104556

Specifications

Optical data	CSR 780-01-96/...WHE-M12	CSR 780-01-432/...WHE-M12
Typ. operating range limit	0 ... 800mm	
Operating range	0 ... 700mm	
Light source	LED infrared	
Wavelength	850nm	
Min. object resolution ¹⁾	1mm	
Measurement field length	96mm	432mm
Timing		
Response time pin 4 (signal)	> 2ms	
Readiness delay	≤ 1s	
Electrical data		
Operating voltage U _B ²⁾	18 ... 30VDC (incl. residual ripple)	
Residual ripple	≤ 15% of U _B	
Max. open-circuit current (excl. switching current)	70mA	150mA
Signal voltage high/low	≥ (U _B -2V)/≤ 2V	
Output current	max. 100 mA	
Switching output ³⁾	CSR 780.../6... CSR 780.../G...	1 push-pull, light switching 1 push-pull, dark switching
Warning output ³⁾		1 push-pull, active-high
Indicators		
Green/red LED	ready/warning	
Yellow LED	object detected/not detected	
2x green LED ⁴⁾	alignment status of first beam alignment status of last beam (counting from connector edge)	
Mechanical data		
Housing	continuous-cast aluminum	
Fastening	M6 screw over sliding blocks with thread depth 5 ... 6mm with a max. tightening torque of 3.5Nm	
Optics cover	plastic (PMMA)	
Weight	0.22kg	0.53kg
Connection type	M12 connector, metal	
Environmental data		
Ambient temp. (operation/storage)	-0°C ... +55°C/-30°C ... +70°C	
Protective circuit ⁵⁾	2, 3	
VDE safety class	III	
Degree of protection	IP 65	
Light source	exempt group (in acc. with EN 62471)	
Standards applied	IEC 60947-5-2	
Certifications	UL 508, C22.2 No.14-13 ^{2) 6)}	

Indicator and operating elements of the



LED/button	Meaning	
1	Green	operation
	Red	warning
2	Yellow	object detected/not detected
	Yellow flashing	teach event
3	Green, flashing	alignment of beam 1 ok
4	Green, flashing	alignment of last beam ok
5	Button	operational control

Remarks

Operate in accordance with intended use!	
⚠	This product is not a safety sensor and is not intended as personnel protection.
⚠	The product may only be put into operation by competent persons.
⚠	Only use the product in accordance with the intended use.

Alignment

- Switch to **alignment mode:**
Press the button (5) > 7s;
LEDs (1) and (2) flash alternately.
- LEDs (3) and (4) indicate whether the first or last beam of the light curtain is being reflected by the reflector.
- Mechanically align the light curtain or reflector until the two green LEDs (3) and (4) flash as quickly as possible.
- Screw down the light curtain and reflector using a lock washer.
- Check whether the LEDs (3) and (4) are still flashing.
- Switch to **normal operation:**
Press the button (5).

CSR 780

Switching Retro-Reflective Light Curtain

Part number code

C S R 7 8 0 - 0 1 - 4 3 2 / 6 W H E - M 1 2

Operating principle

CSR Switching retro-reflective light curtain

Series

780 Series 780, operating range 700mm, cycle time > 2ms

Parameterization

01 Standard

Measurement field length

96 Measurement field length 96mm

432 Measurement field length 432mm

Switching output (pin 4)

6 Switching output push-pull, light switching

G Switching output push-pull, dark switching

Warning output (Pin 2)

WH Warning output push-pull, active-high

Functional earth (pin 5)

E Connection for functional earth

Electrical connection

M12 M12 connector, 5-pin

Order guide

	Designation	Part no.
Measurement field length 96 mm		
Push-pull switching output, light switching ; warning output active-high	CSR780-01-96/6WHE-M12	50128287
Push-pull switching output, dark switching ; warning output active-high	CSR780-01-96/GWHE-M12	50128288
Measurement field length 432 mm		
Push-pull switching output, light switching ; Warning output active-high	CSR780-01-432/6WHE-M12	50128289
Push-pull switching output, dark switching ; warning output active-high	CSR780-01-432/GWHE-M12	50128290
Accessories		
Reflector for CSR780 with measurement field length 96 mm	OCS110x80mm-M	50111155
Reflector for CSR780 with measurement field length 432 mm	OCS450x80mm-M	50111154
Additional fastening sliding blocks	BT-NC	425720
Connection cable with M12 connector, angled, 5-pin, length 2 m, PVC sheathing (other connection cables are available)	K-D M12W-5P-2m-PVC	50104556

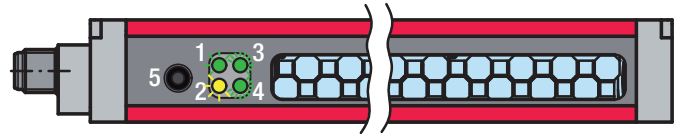
Possible operating states

Alignment mode

Activate by pressing the control button (5) > 7s;
LEDs (1) and (2) flash alternately.

Alignment of the complete system; LED (3) and (4) show the alignment quality (higher flashing frequency = better).

Exit via control button (5).



After each switch-on, the teach-in function is activated automatically.

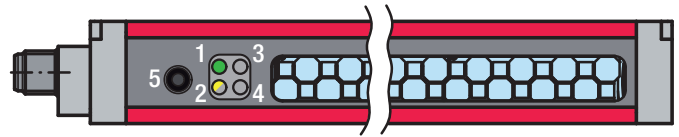
In addition, the teach-in function can be activated by pressing the control button (5) for 2 ... 7s; during this process, LEDs (1) and (2) flash synchronously.

The following operating states may then occur:

Normal operation

LED (1): continuous light **green** -> normal operation.
LED (2): **yellow** -> object detected / not detected.

Fault-free operation, no action required



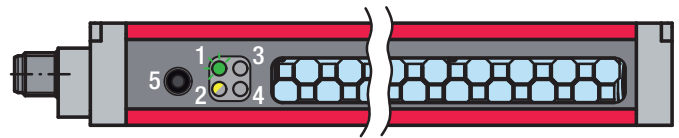
Normal operation with soiling

Fault-free operation. However, a gradual soiling of the optics or the reflector was detected.

LED (1): **flashing green** -> normal operation with soiling.
LED (2): **yellow** object detected / not detected.

Remedy:

- Clean reflector and sensor at the next opportunity.



Possible error states

If a sensor problem is detected during the teach-in function (LEDs (1) and (2) continuously flash synchronously), the sensor switches to one of the following operating modes after the control button is pressed (5):

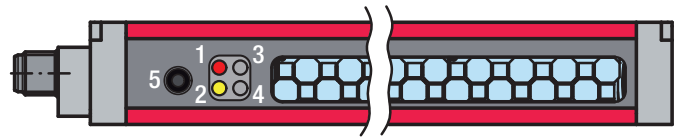
Case of error

Faulty beams ($> \text{Max_Defect}$) detected during automatic readjustment or teach-in function
 -> **no object detection possible.**

LED (1): continuous light **red** -> no object detection.
 LED (2): continuous state "Object detected"

Remedy:

- Check for parts that may extend into the measuring field.
- Check reflector for damage.
- Check sensor screen for damage.
- Check alignment.



Emergency operation

Faulty beams ($\leq \text{Max_Defect}$) detected during automatic readjustment or teach-in function
 -> **object detection with restricted measuring field.**

LED (1): continuous light **red** -> limited object detection.
 LED (2): **yellow** -> object detected / not detected.

Remedy:

- Check for parts that may extend into the measuring field.
- Check reflector for damage.
- Check sensor screen for damage.
- Check alignment.

